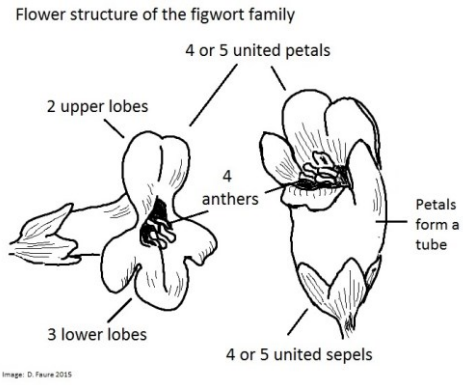
Building Cladograms – Figwort family

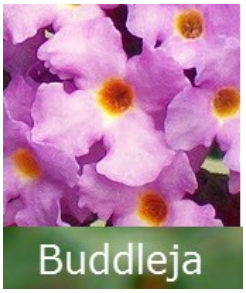
Research flower structures

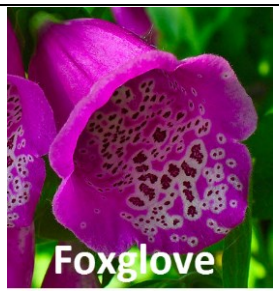
A common way to discover how groups of living things are related is to compare the visible external features. This approach has been used for many years in classification. These features may well represent homologous structures – that is structures derived from a common ancestral structure.

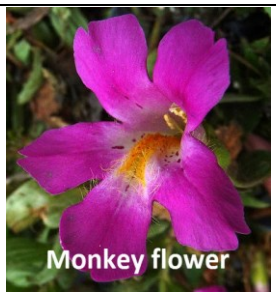
Logically if the organisms share a homologous structure then they probably share an ancestor.

- Look at the diagram showing the structures found in some flowers.
- Using these main structural features compare the eight flowers in the images below.
- Record the presence of the structures in the table of results.









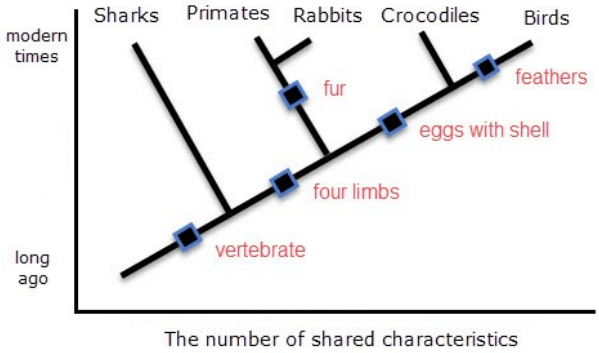
Characteristic	Plantain	Snapdragon	Figwort	Buddleja	Foxglove	Monkey flower	Lopseed	Speedwell
2 upper lobes								
3 lower lobes								
Petals form a tube								
4 or 5 sepals								

Build a cladogram

To build a cladogram biologists find different numbers of shared characteristics between different groups. The different degrees of relationship between the different groups is shown in a branching tree diagram called a cladogram.

The organisms are found at the tips of each branch, and shared homologous features are shown on the diagram as solid square boxes.

Create a cladogram in the space below using data from the table of flower structures.



Questions

1. At the root of each branching tree in a cladogram is a shared ancestor.
   What do biologists call each of the branches of the tree?

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2. Define the term “Clade” which is used in cladograms

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